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Fogg and Associates, LLC
P.O. Box 581339
Minneapolis, MN 55458-1339

EXAMINER
TRAN, KHUONG N

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Application No.	Applicant(s)
Office Action Summary	10/785,347	DRORI ET AL.
	Examiner	**Art Unit**	
	Khuong Tran	4177	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on *24 February 2004*.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-41* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-41* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *24 February 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some *   c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

Specification

1.   The disclosure is objected to because of the following informalities: on page 10,

last line of paragraph 0032, 416 should be replaced with --406--.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

2.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3.   Claims 1-34, and 41 are rejected under 35 U.S.C. 102(b) as being anticipated by

Choudhury et al (US Patent No. 5,541,912).

Regarding claim 1, Choudhury et al teach a method for managing queue length

in a shared memory ATM switch. The method consists of setting a queue length limit

associated with a queue to an initial value **[column 2, lines 14-16]** and increasing the

queue length limit in response to a predetermined condition **[column 5, lines 58-62]**.

Regarding claim 2, from the previous claim, Choudhury et al disclose in the

teaching that the only adjustment is made to the queue length occurs when the initial

queue length limit is set **[column 2, lines 14-16]** and when the queue length limit is

increase in response to the predetermined condition **[column 5, lines 58-62]**.

Regarding claim 3, Choudhury et al teach that the increase in queue length limit is in response to the predetermined condition **[column 5, lines 58-62]**. It is inherent that the adjustment to the threshold values is made at a fixed amount since the total unused capacity of the memory can only hold so much. Additionally, a method calculate the threshold value based on the queue length and capacity is supplemented in equation 1 **[column 5, line 14]**, based on the formula, the control threshold should be a fixed value.

Regarding claim 4, Choudhury et al disclose in **Figure 3** a flow chart of the dynamic threshold system. According to the illustration, step **64** is a decision where a determination is made if a queue length is equal or exceeding the threshold value. If the condition is YES (step **66**), then the packet is dropped where as NO (step **68**), the packet is stored in the queue and the queue length is updated **[Figure 3]**. This approach is analogous to the claim in that the determination to increase the queue length is made if the length has not exceeded the maximum, or threshold value.

Regarding claim 5, based on claim 1, Choudhury et al indicate that the predetermined condition is an overflow condition when a queue has a load increase and begins to 'starve' other queues on memory resource, an adjustment is made to the threshold values **[column 5, lines 58-62]**.

Regarding claim 6, Choudhury et al disclose in **Figure 1** the processor 18 controls storage incoming ATM packets in the memory **20** and transmission of stored packets at the output ports **[column 3, lines 55-57]**. It is further noted that such procedures are well known in the art and can be implemented either in hardware or

software **[column 4, lines 16-20]**. Therefore, it is inherent for a processor to generate

an interrupt as part of the firmware in response to the overflow condition.

Regarding claim 7, Choudhury et al disclose in **Figure 3** the procedure of

regulating packet admission. As stated in previous claim 6, it is inherent to execute the

procedure as outlined in **Figure 3** in an interrupt service routine.

Regarding claim 8, Choudhury et al disclose in Figure 3 a decision step **64** when

a predetermined condition might exist, which leads to step **70** if the condition is met and

the queue length and the threshold value are updated. As stated in the previous claims

6 and 7, it is inherent to incorporate the procedure in an interrupt service routine as part

of the processor's firmware.

Regarding claim 9, Choudhury et al disclose polling of the memory location with

the data where the predetermined condition exists in the teaching **[column 5, lines 62-**

65]. It is noted that when there is no spare buffering, then the packet arrival rate and/or

lost rate of the individual output queue has to be monitored to determine when the load

condition has changed. Therefore, the polling, or monitoring of the memory location

where the predetermined condition has occurred is necessary.

Regarding claim 10, based from claim 5, Choudhury et al disclose that when a

queue begins to take over some of the buffer space, the action prompts the buffer

allocation mechanism that the load conditions have changed and that adjustment of

thresholds is now required **[column 5, lines 58-65]**. Therefore, a predetermined

condition, as described in the teaching, is when a queue beginning to take over some

buffer space in the memory, indicating that an overflow is likely to occur.

Regarding claim 11, Choudhury et al disclose that the queues are asynchronous

transfer mode (ATM) cell queues for the particular system that has input and output

ports for the transferring of ATM packets **[column 1, lines 57-64]**.

Regarding claim 12, Choudhury et al disclose that the increase in queue length

limit is applied for plurality of queues in response to the predetermined condition

[column 4, lines 65-67].

Claims 13-24 are rejected for similar subject matter as claims 1-12, respectively.

Claims 25-34 are rejected for similar subject matter as claims 1-10, respectively.

Claim 41 is rejected for similar subject matter as claim 12.

Claim Rejections - 35 USC § 103

4.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

5.   Claims 35-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Choudhury et al (US Patent No. 5,541,912) in view of Nattkemper et al (US Patent No.

5,999,518).

Regarding claim 35, Choudhury et al illustrates in **Figure 1** a block diagram of

the components of the packet communications module. The teaching recites that the

ATM mapping device, or ATM switch is capable of mapping packets from the input ports

to the appropriate output port **[column 1, lines 60-64]**. Choudhury et al, however, fail to explicitly teach an inverse multiplexer is a part of the ATM mapping device. Nattkemper et al disclose an inversed multiplexer **[25, Figure 2]** as part of the ATM mapping device in the teaching. Therefore, it would have been obvious to one with ordinary skill in the art at the time of the invention to modify the teaching of Choudhury et al to include an inversed multiplexer in the ATM mapping device as taught by Nattkemper et al. One is motivated as such to ensure the proper forwarding of ATM packets to the correct receiving port **[column 5, lines 42-50]**.

Regarding claims 36-38, Choudhury et al disclose in **Figure 1** a list of components that are used to operate the overall system. Choudhury et al, however, fail to teach the use of time division multiplexing (TDM), E1 or T1 line of the TDM architecture, and the communication of such TDM line over à bus. Nattkemper et al disclose the use of TDM bus interface **[26, Figure 2]** adaptable to receive and transmit data with a plurality of TDM lines and that the ATM mapping device **22** is configured to map cells directly to the plurality of TDM lines **[Figure 2]**. Additionally, it is stated that the at least one TDM line includes one of the following line T1 and or E1 **[column 15, lines 38-47]** and the TDM line is communicated over the interface bus **[Figure 2]**. Therefore, it would have been obvious to one with ordinary skill in the art at the time of the invention to modify the teaching of Choudhury et at to incorporate a line interface with TDM as taught by Nattkemper et al. One is motivated as such to increase the functionality of the overall switch to allow for instantaneous controls, real-time controls,

and segment-to-segment propagation delay controls and so forth **[column 4, lines 22-34]**.

Regarding claim 39, Choudhury et al illustrates in **Figure 1** a block diagram of the components of the packet communications module. Choudhury et al, however, fail to explicitly teach a plan old telephone service circuit in communication with the splitter and the TDM bus interface and the splitter is in communication with the ADSL interface device. Nattkemper et al disclose in the teaching that the type of service provided to customer may be plain old telephone service (POTS). As illustrated in Figure 9, the ATM switch **1110** can act as a splitter for a POTS circuit residing in the network **1112**, where the communication of the POTS is facilitated through a TMD interface **1114** and **1116** of system **100**. Additionally, it is apparent that the splitter **1110** is adapted to communicate with the at lease one ADSL line **1120, 1122, 1124** on the downstream side **[Figure 9]**. Therefore, it would have been obvious to one with ordinary skill in the art at the time of the invention to modify the teaching of Choudhury et al to include a POTS circuit and a splitter in communication with the TMD interface as taught by Nattkemper et al. One is motivated as such to provide adequate service to oversubscribe customers **[column 55, lines 45-52]**.

Regarding claim 40, Choudhury et al illustrates in **Figure 1** a block diagram of the components of the packet communications module. Choudhury et al, did not teach a header translation device as a part of the system components. Nattkemper et al disclose a header translation device **[27, Figure 2]** in the teaching. Therefore, it would have been obvious to one with ordinary skill in the art at the time of the invention to

modify the teaching of Choudhury et al to include a header translation device in the

device as taught by Nattkemper et al. One is motivated as such to prevent virtual paths

from consuming the switch fabric resources beyond defined limits and to guarantee the

stability of the overall switch **[column 38, lines 15-20]**.

Conclusion

6.   Any response to this Office Action should be **faxed** to (571) 273-8300 or **mailed**

to:

> Commissioner for Patents,
> P.O. Box 1450
> Alexandria, VA 22313-1450
>
> **Hand-Delivered responses should be brought to**
> Customer Service Window
> Randolph Building
> 401 Dulany Street
> Alexandria, VA 22314

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Khuong Tran, whose telephone number is (571) 270-

3522. The examiner can normally be reached Mon-Fri from 7:30AM - 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Benny Q. Tieu, can be reached at (571) 272-7490. The fax phone number

for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for published

application may be obtained from either Private PAIR or Public PAIR. Status information

application may be obtained from either Private PAIR or Public PAIR. Status information

for unpublished application is available through Private PAIR only. For more information

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866-217-9197 (toll-free).

KT

AU 4177

October 10, 2007

BENNY Q. TIEU

SPE/TRAINER